



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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**EXPEDITE**OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCESMEMORANDUM

SUBJECT: PP#0F2423/FAP#0H5277 [RCB#'s 612 and 654].  
Chlorpyrifos-Methyl (Reldan) on Stored Grains.  
Evaluation of Maximum Expected Residue Levels  
on Stored Grains and Their Processed Fractions  
(Accession Numbers 099645 and 099646).

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THRU: Charles L. Trichilo, Ph.D., Chief  
Residue Chemistry Branch  
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TO: Jay S. Ellenberger, Product Manager No. 12  
Insecticide-Rodenticide Branch  
Registration Division (TS-767)

and

Toxicology Branch  
Hazard Evaluation Division (TS-769)

Note: This review has been expedited per the request of  
Mr. D. D. Campt, Director, Registration Division  
(see memo dated 2/7/85).

## INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL: chlorpyrifos-methylPETITION NO.: OF2423/045277CCPR NO.: 90REVIEWER: Michael P. FirestoneCodex Status☐ No Codex Proposal Step  
6 or above

Residue (if Step 9): \_\_\_\_\_

chlorpyrifos-methylProposed U.S. TolerancesResidue: (see p. 1)Crop(s) Limit (mg/kg)

|                        |       |
|------------------------|-------|
| cattle, carcass meat   | 0.05  |
| cattle fat             | 0.05  |
| cattle meat byproducts | 0.05  |
| meat of chicken        | 0.05  |
| chicken fat            | 0.05  |
| chicken byproducts     | 0.05  |
| milk                   | 0.014 |
| eggs                   | 0.05  |

CANADIAN LIMIT

Residue: \_\_\_\_\_

Crop(s) Limit (ppm)noneCrop(s) Tol. (ppm)

|   |      |
|---|------|
| meat, fat and meat byproducts<br>of cattle, hogs, horses,<br>goats, sheep and poultry | 0.5  |
| milk fat (refined 0.05 ppm<br>in whole milk)  | 1.25 |

|      |     |
|------|-----|
| eggs | 0.1 |
|------|-----|

MEXICAN TOLERANCIA

Residue: \_\_\_\_\_

Crop(s) Tolerancia (ppm)none1/ at or about limit of determination.

Notes:

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Introduction

RCB has previously recommended for establishment (see R. Perfetti memo of 10/12/83) of the following tolerances:

| <u>Raw Agricultural Commodity</u>  | <u>Level (ppm)</u> |
|--|--------------------|
| barley grain   | 6                  |
| corn grain   | 6 (0.1)            |
| oats   | 6                  |
| rice grain   | 6                  |
| sorghum  | 6                  |
| wheat grain  | 6                  |
| meat, fat, and meat by-products of cattle,<br>goats, hogs, horses, poultry and sheep | 0.5                |
| milk fat   | 1.25               |
| (reflecting in whole milk)   | 0.05               |
| eggs   | 0.1                |

At the same time, RCB also recommended for establishment of the following food additive tolerances:

| <u>Processed Commodity</u>               | <u>Level (ppm)</u> |
|--|--------------------|
| rice milling fractions                   | 30                 |
| sorghum milling fractions (except flour) | 90                 |
| barley milling fractions (except flour)  | 90                 |
| oat milling fractions (except flour)     | 130                |
| wheat milling fractions (except flour)   | 30                 |
| corn oil                                 | 160 (2.7)          |
| corn soapstock                           | 40 (0.7)           |

As per Registration Division's request (see D. Campt memo of 2/7/85), RCB has now been asked to evaluate the residue data for chlorpyrifos-methyl (Reldan) and its metabolite 3,5,6-trichloro-2-pyridinol in cereal grain milled (processed) fractions in order to assist TOX in their reassessment of the TMRC for chlorpyrifos-methyl.

Present Considerations

RCB has now calculated the maximum expected residue levels (parent plus metabolite) in all milled grain fractions for which the petitioner has submitted data (i.e., accession numbers 099645 and 099646).

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These results are tabularized below:

| Cereal Grain,<br>Milling Fraction | Total Residue <sup>a</sup><br>(ppm) | Concentration<br>Factor | Maximum Expected<br>Residue (ppm) |
|-----------------------------------|-------------------------------------|-------------------------|-----------------------------------|
| barley, grain                     | 4.1                                 | -----                   | 6.0b                              |
| malt                              | 1.8                                 | 0.44                    | 2.6                               |
| spent grain                       | 0.6                                 | 0.15                    | 0.9                               |
| filter aid                        | 0.3                                 | 0.07                    | 0.4                               |
| yeast                             | 1.3                                 | 0.32                    | 1.9                               |
| malt cleanings                    | 2.6                                 | 0.63                    | 3.8                               |
| cleaner overs                     | 2.7                                 | 0.66                    | 4.0                               |
| cleaner thrus                     | 42.2                                | 10.3                    | 61.8                              |
|                                   | 0.3                                 | 0.07                    | 0.4                               |
| wheat, grain                      | 4.3                                 | ----                    | 6.0b                              |
| flour                             | 0.8                                 | 0.19                    | 1.1                               |
| bran                              | 13.5                                | 3.1                     | 18.8                              |
| shorts                            | 19.5                                | 4.5                     | 27.2                              |
| red dog                           | 9.1                                 | 2.1                     | 12.7                              |
| germ                              | 17.2                                | 4.0                     | 24.0                              |
| cookies                           | 0.3                                 | 0.07                    | 0.4                               |
| rice, rough rice                  | 5.7- 5.5 7.4 4.8                    | -----                   | 6.0b                              |
| hulls                             | 17.9 22.6 20.2 18.3                 | 4.1                     | 24.7                              |
| brown rice                        | 1.3 1.1 3.4 1.5                     | 0.46                    | 2.8                               |
| bran                              | 8.2 7.6 17.1 7.9                    | 2.3                     | 13.9                              |
| milled rice                       | 0.2 0.2 0.4 0.1                     | 0.05                    | 0.3                               |
| sorghum, grain                    | 4.35                                | -----                   | 6.0b                              |
| flour                             | 1.7                                 | 0.39                    | 2.3                               |
| bran                              | 12.0                                | 2.8                     | 16.8                              |
| screenings                        | 58.8                                | 13.5                    | 81.1                              |
| shorts                            | 6.9                                 | 1.6                     | 9.6                               |
| germ                              | 13.2                                | 3.0                     | 18.0                              |
| corn, grain                       | 4.2                                 | -----                   | 6.0b                              |
| solvent-extracted                 |                                     |                         |                                   |
| corn                              | 1.4                                 | 0.33                    | 2.0                               |
| crude oil                         | 101.9                               | 24.3                    | 145.8                             |
| refined oil                       | 106.7                               | 25.4                    | 152.4                             |
| bleached                          |                                     |                         |                                   |
| refined oil                       | 96.6                                | 23.0                    | 138.0                             |
| soapstock                         | 26.6                                | 6.3                     | 38.0                              |

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| Cereal Grain,<br>Milling Fraction | Total Residue <sup>a</sup><br>(ppm) | Concentration<br>Factor | Maximum Expected<br>Residue (ppm) |
|-----------------------------------|-------------------------------------|-------------------------|-----------------------------------|
| oats, grain                       | 4.9                                 | -----                   | 6.0 <sup>b</sup>                  |
| hulls                             | 10.5                                | 2.1                     | 12.9                              |
| groats                            | 1.2                                 | 0.24                    | 1.5                               |
| flakes                            | 0.9                                 | 0.18                    | 1.1                               |
| dics rejects                      | 1.3                                 | 0.27                    | 1.6                               |
| light oats                        | 16.1                                | 3.3                     | 19.7                              |
| dust                              | 95.7                                | 19.5                    | 117.2                             |

- a) Total residue consists of chlorpyrifos-methyl plus 3,5,6-trichloro-2-pyridinol.
- b) Maximum expected residue levels are based on a maximum proposed application rate of 6 ppm.

#### Other Considerations

An International Residue Limit Status sheet is attached to this review. No Canadian or Mexican limits/tolerances have been established for chlorpyrifos-methyl in cereal grains or animal commodities.

Codex limits have been established for chlorpyrifos-methyl (parent compound only - i.e., indicator compound concept) in animal commodities at levels generally 10% of the proposed U.S. tolerances. Codex limits on maize (presumably corn), wheat and sorghum (10 ppm) exceed proposed U.S. tolerances (6 ppm), while the Codex limit on rice (0.1 ppm) is very much lower than the proposed 6 ppm U.S. tolerance. Thus, RCB does not foresee any way in which established Codex limits and proposed U.S. tolerances could be made compatible.

Because of the high residue level in some processed grain fractions, and Toxicology's concern about exposure exceeding the ADI, RCB recommends that FDA put chlorpyrifos-methyl on grains high up in the priority list of pesticides to monitor.

cc:R.F., Circu, Reviewer:TOX, EAB, EEB, PP#OF2434/FAP#OH5277  
 RDI:JHOnley:2/19/85:RDSchmitt:2/19/85  
 TS-769:RCB:CM#2:RM810:X7484:MPFirestone:wh:2/19/85



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R106573

**Chemical:** Chlorpyrifos-methyl

**PC Code:** 059102  
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